AMENDMENTS TO THE CLAIMS

Please amend claims 1, 2, 4, 9-13, 20-24 and 37-38; cancel claims 17-18, 39, 42, 52, 54-83, 86-89, 94, 113, 117, 127, 129-139; and add new claims 140-151. This listing will replace all prior versions of claims in the application.

1. (Currently Amended) An organic, small pore area material comprising a monolithic aerogel, wherein its smallest dimension is greater than about 3 inches; the average pore diameter is between about 55 nm and about 25 μm; and said aerogel is substantially free of cracks.

2. (Currently Amended) An organic, small pore area material comprising a monolithic aerogel prepared using a non-critical drying process, wherein its smallest dimension is greater than about 3 inches; the average pore diameter is between about 55 nm and about 25 μm; and said aerogel is substantially free of cracks.

3. (Previously Presented) The organic, small pore area material of claim 2, having a density less than about 300 kg/m^3.

4. (Currently Amended) The organic, small pore area material of claim 2, having a surface area ~~less~~ greater than about 200 m^2/g.

5. (Previously Presented) The organic, small pore area material of claim 2 in which the material is substantially dried in less than about 24 hours.

6. (Previously Presented) The organic, small pore area material of claim 1 comprising:

(a) greater than about 80 % open pores; and

(b) a density less than about 300 kg/m^3.

7. (Original) The small pore area material according to any one of claims 1-5, wherein the aerogel shrinks less than about 25 % (by volume).

8. (Original) The small pore area material according to any one of claims 1-5, wherein the aerogel does not shrink substantially.

9. (Currently Amended) The small pore area material according to any one of claims 1-5, wherein the average pore area is less than about 200 μm^2 ~~m^2~~.

10. (Currently Amended) The small pore area material according to any one of claims 1-5, wherein the average pore area is less than about 100 μm^2 ~~m^2~~.

11. (Currently Amended) The small pore area material according to any one of claims 1-5, wherein the average pore area is less than about 50 μm^2 ~~m^2~~.

12. (Currently Amended) The small pore area material according to any one of claims 1-5, wherein the average pore area is less than about 0.8 μm^2 ~~m^2~~.

13. (Currently Amended) The small pore area material according to any one of claims 1-5, wherein the average pore area is less than about 2000 nm^2.

14. (Previously Presented) The organic, small pore area material of claim 3 wherein the material is formed in situ.

15. (Previously Presented) The organic, small pore area material of claim 4 wherein the material is formed in situ.

16. (Previously Presented) The organic, small pore area material of claim 2 wherein the material is formed in situ in less than about 24 hours.

17-18. (Canceled).

19. (Previously Presented) The small pore area material according to claim 16, wherein the material is prepared using a non-critical drying process.

20. (Currently Amended) The small pore area material according to any one of claims 14-16, wherein the material comprises:

(a) greater than about 80 % open pores; and

(b) a density less than about 300 kg/m^3 ~~kg/m3~~.

21. (Currently Amended) The small pore area material according to any one of claim 1-5 or 14-16, wherein the density is less than about 275 kg/m^3 ~~kg/m3~~.

22. (Currently Amended) The small pore area material according to claim 1-5 or 14-16, wherein the density is less than about 250 kg/m^3 ~~kg/m3~~.

23. (Currently Amended) The small pore area material according to claim 1-5 or 14-16, wherein the density is less than about 150 kg/m^3 ~~kg/m3~~.

24. (Currently Amended) The small pore area material according to claim 1-5 or 14-16, wherein the density is less than about 100 kg/m^3 ~~kg/m3~~.

25. (Previously Presented) The organic, small pore area material of claim 2 having a thermal conductivity less than about 0.0135 W/(m·K) at a pressure of up to about 10 Torr.

26. (Previously Presented) The small pore area material according to claim 25, wherein the thermal conductivity is less than about 0.008 W/(m·K) at a pressure of up to about 10 Torr.

27. (Previously Presented) The organic, small pore area material of claim 2 having a thermal conductivity less than about 0.009 W/(m·K) at a pressure of up to about 1 Torr.

28. (Original) The small pore area material according to claim 27, wherein the thermal conductivity is less than about 0.007 W/(m·K) at a pressure of up to about 1 Torr.

29. (Previously Presented) The organic, small pore area material of claim 2 having a thermal conductivity less than about 0.005 W/(m·K) at a pressure of up to about 0.1 Torr.

30. (Original) The small pore area material according to claim 29, wherein the thermal conductivity is less than about 0.0035 W/(m·K) at a pressure of up to about 0.1 Torr.

31. (Original) The small pore area material according to any one of claims 1-5 or 14-16, wherein said small pore area material has a thermal conductivity less than about 0.0135 W/(m·K) at a pressure of up to about 10 Torr, and said material has a monolithic form and is formed using a non-critical drying process.

32. (Original) The small pore area material according to claim 31, wherein the thermal conductivity is less than about 0.008 W/(m·K) at a pressure of up to about 10 Torr.

33. (Original) The small pore area material according to any one of claims 1-5 or 14-16, wherein said small pore area material has a thermal conductivity less than about 0.009 W/(m·K) at a pressure of up to about 1 Torr, and said material has a monolithic form and is formed using a non-critical drying process.

34. (Original) The small pore area material according to claim 33, wherein the thermal conductivity is less than about 0.007 W/(m·K) at a pressure of up to about 1 Torr.

35. (Original) The small pore area material according to any one of claims 1-5 or 14-16, wherein said small pore area material has a thermal conductivity less than about 0.005 W/(m·K) at a pressure of up to about 0.1 Torr, and said material has a monolithic form and is formed using a non-critical drying process.

36. (Original) The small pore area material according to claim 35, wherein the thermal conductivity is less than about 0.0035 W/(m·K) at a pressure of up to about 0.1 Torr.

37. (Currently Amended) A small pore area material comprising acetic acid, wherein the acetic acid is incorporated into the small pore area material structure.

38. (Currently Amended) The small pore area material according to any one of claims 1-5 or 14-16, comprising acetic acid, wherein the acetic acid is incorporated into the small pore area material structure.

39. (Canceled).

40. (Previously Presented) A small pore area material comprising a hydroxylated aromatic; a solvent comprising a carboxylic acid; and an electrophilic linking agent.

41. (Previously Presented) The small pore area material of claim 40, wherein the solvent is capable of making covalent modifications within the small pore area material.

42. (Canceled).

43. (Previously Presented) The small pore area material of claim 41, wherein said carboxylic acid is selected from the group consisting of acetic acid, formic acid, propionic acid, butyric acid, pentanoic acid, and isomers thereof.

44. (Original) The small pore area material of claim 43, wherein said carboxylic acid is acetic acid.

45. (Original) The small pore area material of claim 40, wherein said hydroxylated aromatic is a hydroxylated benzene compound.

46. (Original) The small pore area material of claim 40, wherein said hydroxylated aromatic comprises a phenolic-novolak resin.

47. (Original) The small pore area material of claim 40, wherein said electrophilic linking agent comprises an aldehyde.

48. (Original) The small pore area material of claim 40, wherein said electrophilic linking agent comprises furfural.

49. (Original) The small pore area material of claim 40, wherein said electrophilic linking agent comprises alcohol.

50. (Original) The small pore area material of claim 49, wherein said alcohol is furfuryl alcohol.

51. (Original) The small pore area material of claim 40, wherein said small pore area material is prepared during a sol-gel polymerization process.

52. (Canceled).

53. (Original) The small pore area material of any one of claims 1-5 or 14-16, wherein said material is produced in a method that uses a surfactant.

54-83. (Canceled).

84. (Original) A carbonized form of the low density microcellular material according to any one of claims 1-5.

85. (Original) A carbonized form of the small pore area material according to any one of claims 1-5.

86-89. (Canceled).

90. (Original) The small pore area material according to claim 6, wherein said material is a low density microcellular material.

91. (Original) The small pore area material according to claim 14, wherein said material is a low density microcellular material.

92. (Original) The small pore area material according to claim 15, wherein said material is a low density microcellular material.

93. (Original) The small pore area material according to claim 16, wherein said material is a low density microcellular material.

94. (Canceled).

95. (Original) The low density microcellular material according to any one of claims 90-92, wherein the material is prepared using a non-critical drying process.

96. (Original) The low density microcellular material according to any one of claims 90-92, wherein the material comprises:

(a) greater than about 80 % open pores; and

(b) a density less than about 300 kg/m^3.

97. (Original) The low density microcellular material according to any one of claims 90-92, wherein the density is less than about 275 kg/m^3.

98. (Original) The low density microcellular material according to claims 90-92, wherein the density is less than about 250 kg/m^3.

99. (Original) The low density microcellular material according to claims 90-92, wherein the density is less than about 150 kg/m^3.

100. (Original) The low density microcellular material according to claims 90-92, wherein the density is less than about 100 kg/m^3.

101. (Original) The small pore area material according to claim 25, wherein said material is a low density microcellular material.

102. (Original) The low density microcellular material according to claim 101, wherein the thermal conductivity is less than about 0.008 W/(m·K) at a pressure of up to about 10 Torr.

103. (Original) The small pore area material according to claim 27, wherein said material is a low density microcellular material.

104. (Original) The low density microcellular material according to claim 103, wherein the thermal conductivity is less than about 0.007 W/(m·K) at a pressure of up to about 1 Torr.

105. (Original) The small pore area material according to claim 29, wherein said material is a low density microcellular material.

106. (Original) The low density microcellular material according to claim 105, wherein the thermal conductivity is less than about 0.0035 W/(m·K) at a pressure of up to about 0.1 Torr.

107. (Original) The low density microcellular material according to any one of claims 90-92, wherein said low density microcellular material has a thermal conductivity less than about 0.0135 W/(m·K) at a pressure of up to about 10 Torr, and said material has a monolithic form and is formed using a non-critical drying process.

108. (Original) The low density microcellular material according to claim 107, wherein the thermal conductivity is less than about 0.008 W/(m·K) at a pressure of up to about 10 Torr.

109. (Original) The low density microcellular material according to any one of claims 90-92, wherein said low density microcellular material has a thermal conductivity less than about 0.009 W/(m·K) at a pressure of up to about 1 Torr, and said material has a monolithic form and is formed using a non-critical drying process.

110. (Original) The low density microcellular material according to claim 109, wherein the thermal conductivity is less than about 0.007 W/(m·K) at a pressure of up to about 1 Torr.

111. (Original) The low density microcellular material according to any one of claims 90-92, wherein said low density microcellular material has a thermal conductivity less than about 0.005 W/(m·K) at a pressure of up to about 0.1 Torr, and said material has a monolithic form and is formed using a non-critical drying process.

112. (Original) The low density microcellular material according to claim 111, wherein the thermal conductivity is less than about 0.0035 W/(m·K) at a pressure of up to about 0.1 Torr.

113. (Canceled).

114. (Original) The low density microcellular material according to any one of claims 90-92, comprising acetic acid.

115. (Previously Presented) A low density microcellular material comprising a hydroxylated aromatic; a solvent comprising a carboxylic acid; and an electrophilic linking agent.

116. (Previously Presented) The low density microcellular material of claim 115, wherein the solvent is capable of making covalent modifications within the small pore area material.

117. (Canceled).

118. (Previously Presented) The low density microcellular material of claim 115, wherein said carboxylic acid is selected from the group consisting of acetic acid, formic acid, propionic acid, butyric acid, pentanoic acid, and isomers thereof.

119. (Previously Presented) The low density microcellular material of claim 118, wherein said carboxylic acid is acetic acid.

120. (Original) The low density microcellular material of claim 115, wherein said hydroxylated aromatic is a hydroxylated benzene compound.

121. (Original) The low density microcellular material of claim 115, wherein said hydroxylated aromatic comprises a phenolic-novolak resin.

122. (Original) The low density microcellular material of claim 115, wherein said electrophilic linking agent comprises an aldehyde.

123. (Original) The low density microcellular material of claim 115, wherein said electrophilic linking agent comprises furfural.

124. (Original) The low density microcellular material of claim 115, wherein said electrophilic linking agent comprises alcohol.

125. (Original) The low density microcellular material of claim 124, wherein said alcohol is furfuryl alcohol.

126. (Original) The low density microcellular material of claim 115, wherein said low density microcellular material is in the form of a complex prepared during a sol-gel polymerization process.

127. (Canceled).

128. (Original) The low density microcellular material of any one of claims 90-92, wherein said material is produced in a method that uses a surfactant.

129-139. (Canceled).

140. (New) The organic, small pore area material of claim 1 comprising:

(a) greater than about 90 % open pores; and

(b) a density less than about 300 kg/m^3.

141. (New) The organic, small pore area material of claim 1 comprising:

(a) about 100 % open pores; and

(b) a density less than about 300 kg/m^3.

142. (New) The organic, small pore area material of claim 1 comprising:

(a) greater than about 95 % open pores;

(b) a density less than about 200 kg/m^3; and

(c) an average pore area less than about 200 μm^2.

143. (New) The organic, small pore area material of claim 2, having a surface area greater than about 100 m^2/g.

144. (New) The organic, small pore area material of claim 2, having a surface area greater than about 50 m^2/g.

145. (New) The organic, small pore area material of claim 2, having a surface area greater than about 10 m^2/g.

146. (New) The small pore area material of claim 40, wherein said hydroxylated aromatic is selected from the group consisting of phenol, resorcinol, catechol, hydroquinone, phloroglucinol and liquid phenolic resins.

147. (New) The small pore area material of claim 40, wherein said electrophilic linking agent comprises formaldehyde.

148. (New) The small pore area material according to any one of claims 1, 2, 37 or 40, further comprising an agent selected from the group consisting of metal powders, metal oxides, metal salts, silica, alumina, aluminosilicates, carbon black, novoloid fibers and fire resistant additives.

149. (New) The low density microcellular material of claim 115, wherein said hydroxylated aromatic is selected from the group consisting of phenol, resorcinol, catechol, hydroquinone, phloroglucinol and liquid phenolic resins.

150. (New) The low density microcellular material of claim 115, wherein said electrophilic linking agent comprises formaldehyde.

151. (New) The low density microcellular material of claim 115, further comprising an agent selected from the group consisting of metal powders, metal oxides, metal salts, silica, alumina, aluminosilicates, carbon black, novoloid fibers and fire resistant additives.